

FACTSHEET

Plant Protection & Quarantine

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The Hibiscus or Pink Mealybug

The hibiscus or pink mealybug, *Maconellicoccus hirsutus* (Green), is a dangerous pest of many plants, trees, and shrubs. It infests hibiscus, citrus, coffee, sugar cane, annonas, plums, guava, mango, okra, sorrel, teak, mora, pigeon pea, peanut, grapevine, maize, asparagus, chrysanthemum, beans, cotton, soybean, cocoa, and many other plants.

This pest occurs in most tropical areas of the world, including Asia, the Middle East, Africa, Australia, and Oceania. The hibiscus mealybug arrived in Egypt from India in 1912 and in Hawaii in 1984. Finally, it appeared in Grenada, Trinidad, and St. Kitts in the 1990's.

It is now a very serious pest in the Caribbean where it attacks many hosts of economic importance and disrupts Caribbean agricultural trade and commerce.

The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) is charged with protecting American agriculture from exotic plant pests like the hibiscus mealybug. With the pest's recent arrival in the Caribbean, APHIS is increasing its vigilance to prevent this pest from entering the United States.

The hibiscus mealybug is considered a pest of extremely serious quarantine importance and has the potential to expand its geographical distribution to North, Central, and South America.

Description and Life Cycle

The hibiscus mealybug is also known as the grape mealybug and the grapevine mealybug. The pest forms colonies on the host plant, and if left undisturbed, the colonies will grow into large masses of white waxy coverings on branches, fruiting structures, leaves, and even whole plants, including large trees.

Both female and male adult hibiscus mealybugs are about one-eighth inch (3 mm) long. Female bodies are pink in color with a white waxy covering. They are wingless and appear as ovoid shapes covered by a mass of white mealy wax. Males have a pair of wings and two long waxy tails and are capable of flight.



Crawler



Adult female



Male

Illustrations courtesy of the Ministry of Agriculture, Egypt.

Observers have reported that reproduction may occur by means of parthenogenesis in the absence of the male. In cool climates, the pest overwinters in the soil or on the host plant, either in the egg stage or as an adult.

Newly hatched nymphs are called crawlers and are very mobile. They may disperse over the host, especially toward tender growing parts, or be carried away by wind, man, or animals. The nymphal stages appear much like the female in form, but the female nymphs have three instars, while male nymphs have four instars. The last instar of the male is an inactive stage with wing buds within a cocoon of mealy wax. The nymphal stages may last for as long as 30 days.

Spread

The mature female lays eggs in an eggsack of white wax, usually in clusters on the twigs, branches, and bark of the host plant, and also on the plant's leaves and terminal ends. Eggs are initially orange in color but turn pink on maturity. Egg development takes between 3 and 9 days. Eggs are minute, varying from 0.3 to 0.4 mm in length and number as many as 654 eggs per sack. In its egg stage, the hibiscus mealybug disperses most easily by wind. The wax, which sticks to each egg, also facilitates passive transport by animals or man.

Wingless crawlers, nymphs, and females have been known to travel short distances over the ground to get to other host plants in adjoining fields. Agricultural commerce is also responsible for the pest's spread.

The hibiscus mealybug can complete its entire life cycle in 23 to 30 days. Under optimum laboratory conditions, there can be as many as 15 generations a year. The pest can occur seasonally in colder regions from infestations spread by wind currents.

The pest has some ability to adapt to cooler weather as shown by nymphal movement to sheltered locations and the female's choice of protected places for eggsacks.

Damage

As it feeds, the hibiscus mealybug injects into the plant a toxic saliva that results in malformed leaf and shoot growth, stunting, and occasional death. Leaves show a characteristic curling, similar to damage caused by viruses. Heavily infested plants have shortened internodes leading to resetting or a "bunchy top" appearance. A heavy, black, sooty mold may develop on an infested plant's leaves and stems as a result of the mealybug's heavy honey-dew secretions.

When fruits are infested, they can be entirely covered with the white waxy coating of the mealybug. Infestation can lead to fruit drop, or fruit may remain on the host in a dried and shriveled condition. If flower blossoms are attacked, the fruit sets poorly. In plants such as peanuts, potatoes, and some grasses, the pest has been reported to attack the root systems.

The hibiscus mealybug has a wide range of hundreds of unrelated plant hosts; the list is growing as the pest spreads into new geographical areas. So far, the pest has been found on 215 genera of plants. Its wide host range favors rapid spread and complicates effective control.

In spite of its wide distribution, the hibiscus mealybug was a major pest only in India and Egypt prior to its discovery in the Caribbean. In India, it is a major pest of grapes, reducing grape yields 50 to 100 percent. Yield losses on other crops such as sorrel, jute, mesta, and roselle range up to 75 percent. In Egypt, the mealybug is an extremely serious pest of shade trees, such as the lebbekh and the bauhinia, and of mulberry, pigeon pea, and guava. Cotton is particularly susceptible if it is planted near infested trees.

In Hawaii the hibiscus mealybug has not become an economically important pest, probably because it is regulated by several natural enemies.

In Grenada the hibiscus mealybug infests cocoa, many types of fruit and vegetables, and ornamental plants, such as hibiscus, oleander, and croton. The worst effect has been on Grenada's forests, where entire trees have been killed and whole groves are under threat of extinction.

Control

Ways to control the hibiscus mealybug include the use of insecticides, cultural practices, and biological control. Biological control is the best long-term solution.

A number of natural enemies are known, including the coccinellid predator *Cryptolaemus montrouzieri* and the parasite *Anagyrus kamali*. In Egypt and India, biological controls have been quite successful in controlling the hibiscus mealybug. Other coccinellid predators have also been reported in India. At present, 21 parasites and 41 predators are known to attack the hibiscus mealybug worldwide.

Distribution of Hibiscus Mealybug

Caribbean Islands Infested With Hibiscus Mealybug

(*Maconellicoccus hirsutus* (Green))

